

What is claimed is:

1 1. A method comprising
2 receiving a request to remove a hot plug module from a running computing
3 device; and
4 updating a snoop filter of the running computing device to cease snooping of the
5 hot plug module.

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1 2. The method of claim 1 wherein updating comprises updating the snoop filter to
2 indicate that the hot plug module is no longer a valid snooping agent.

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1 3. The method of claim 1 wherein updating comprises updating a valid vector to
2 indicate that the hot plug module is not a valid snooping agent.

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1 4. The method of claim 1 wherein updating comprises disabling the snoop filter
2 associated with the hot plug module.

1 5. The method of claim 1 wherein updating comprises marking all cache lines tracked
2 by the snoop filter as not being present in the hot plug module.

1 6. The method of claim 1 wherein updating comprises updating presence vectors to
2 indicate that associated cache lines are not present in the hot plug module.

1 7. A midplane comprising

2 a plurality of couplers to detachably couple hot plug modules to a running
3 computing device; and

4 a switch to interconnect the plurality of couplers and to cease issuing snoop
5 transactions to a coupler of the plurality of couplers associated with a hot plug module
6 to be removed from the running computing device.

1 8. The midplane of claim 7 wherein the switch causes the hot plug module to be
2 removed to write modified cache lines to a memory of the running computing device.

1 9. The midplane of claim 7 wherein

2 the switch comprises a valid vector, and

3 the switch issues snoop transactions only to couplers that the valid vector
4 indicates are associated with valid snooping agents.

1 10. The midplane of claim 7 wherein

2 the switch comprises presence vectors associated with cache lines of the hot
3 plug module to be removed, and

4 the switch updates the presence vectors to indicate that the hot plug module
5 does not have copies of the associated cache lines.

1 11. The midplane of claim 7 wherein

2 the switch comprises a different snoop filter for each coupler of the plurality of
3 couplers, and

4 the switch disables the snoop filter for the coupler associated with the hot plug
5 module to be removed.

1 12. The midplane of claim 7 further comprising another switch to interconnect the
2 plurality of couplers, wherein the switches collectively track states of cache lines of hot
3 plug modules coupled to the couplers and cease to issue snoop transactions to the
4 coupler associated with the hot plug module to be removed.

1 13. A machine readable medium processing snoop transactions comprising a plurality
2 of instructions that in response to being executed result in a computing device
3 causing caching agents associated with a coupler of the computing device to
4 write back modified lines to a memory of the computing device; and
5 updating a valid vector to indicate that the coupler is no longer associated with
6 one or more valid caching agents.

1 14. The machine readable medium of 13, wherein the plurality of instructions in
2 response to being executed further result in the computing device
3 updating the valid vector in response to a hot plug removal request.

1 15. The machine readable medium of 14, wherein the plurality of instructions in
2 response to being executed further result in the computing device
3 updating the valid vector to indicate that another coupler of the computing device
4 is now associated with one or more valid caching agents in response to a hot plug
5 addition request.

1 16. The machine readable medium of 15, wherein the plurality of instructions in
2 response to being executed further result in the computing device

3 clearing a bit of the valid vector that is associated with the coupler to indicate that
4 the coupler is no longer associated with one or more valid caching agents, and
5 setting another bit of the valid vector that is associated with the another coupler
6 to indicate that the another coupler is associated with one or more valid caching agents.

1 17. A computing device comprising,

2 a memory,

3 a hot plug module comprising a coupler and one or more caching agents having
4 cached lines of the memory;

5 a midplane comprising a coupler detachably coupled the coupler of the hot plug
6 module and a snoop filter to track the cached lines of the one or more caching agents;
7 and

8 a processor coupled to the hot plug module via the midplane, the processor to
9 cause the snoop filter to mark the one or more caching agents as invalid snooping
10 agents in response to a request to remove the hot plug module.

11 18. The computing device of claim 17, wherein

2 the hot plug module comprises a mechanism to generate the request to remove
3 the hot plug module.

1 19. The computing device of claim 17, wherein the memory comprises a plurality of
2 instructions that in response to being executed result in the request to remove the hot
3 plug module being generated.

1 20. The computing device of claim 17, wherein the one or more caching agents
2 comprises a processor and one or more associated memory caches.

1 21. The computing device of claim 17, wherein the one or more caching agents
2 comprises an input/output hub and one or more associated memory caches.

1 22. A snoop filter comprising
2 storage to store coherency information for lines cached by caching agents of hot
3 plug modules; and
4 a controller to update the coherency information in response to a request to
5 remove a hot plug module from a computing device.

1 23. The snoop filter of claim 22 wherein the controller further updates the coherency
2 information in response to a request to add a hot plug module to the computing device.

1 24. The snoop filter of claim 22 wherein the controller updates the coherency
2 information to indicate that the hot plug module is no longer a valid snooping agent in
3 response to the request to remove the hot plug module.

1 25. The snoop filter of claim 22 wherein the controller updates a valid vector of the
2 coherency information to indicate that the hot plug module is no longer a valid snooping
3 agent in response to the request to remove the hot plug module.

1 26. The snoop filter of claim 22 wherein the controller updates the coherency
2 information by marking all tracked cache as not being present in the hot plug module in
3 response to the request to remove the hot plug module.

- 1 27. The snoop filter of claim 22 wherein the controller updates the coherency
- 2 information by updating presence vectors to indicate that associated cache lines are not
- 3 present in the hot plug module in response to the request to remove the hot plug
- 4 module.

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